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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 1 of 4

## Complete if Known

Application Number	unknown
Filing Date	Concurrently herewith
First Named Inventor	Chenget al
Group Art Unit	UNKNOWN
Examiner Name	UNKNOWN
Attorney Docket Number	CL1646 US DIV

## OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
YJP		Spurgeon and Porter, Biosynthesis of Isoprenoid Compounds, pp 3-46, A Wiley-Interscience Publication, 1981	
YJP		Horbach et al., Isoprenoid biosynthesis in bacteria: Two Different pathways? FEMS Microbiol. Lett. 111:135-140, 1993	
YJP		Rohmer et al., Isoprenoid biosynthesis in bacteria: a novel pathway for the early steps leading to isopentenyl diphosphate, Biochem. 295: 517-524, 1993	
YJP		Schwender et al., Biosynthesis of isoprenoids via a novel pyruvate/glyceraldehyde 3-phosphate non-mevalonate pathway in the green alga Scenedesmus obliquus, Biochem., 316, 73-38, 1996	
YJP		Eisenreich et al., Studies on the biosynthesis of taxol: The taxane carbon skeleton is not of mevalonoid origin, Proc. Natl. Acad. Sci. USA 93: 6431-6436, 1996	
YJP		Lois et al., Cloning and characterization of a gene from Escherichia coli encoding a transketolase-like enzyme that catalyzes the synthesis of D-1-deoxyxylulose 5-phosphate, a common precursor for isoprenoid, thiamin, and pyridoxol biosynthesis, Proc. Natl. Acad. Sci. USA 95: 2105-2110, 1998	
YJP		Takahashi et al., A 1-deoxy-D-xylulose 5-phosphate reductoisomerase catalyzing the formulation of 2-C-methyl-D-erythritol 4-phosphate in an alternative nonmevalonate pathway for terpenoid biosynthesis, Proc. Natl. Acad. Sci. USA 95: 8879-8884, 1998	
YJP		4-diphosphocytidyl-2C-methyl-d-erythritol synthase, SwissProt#Q46893, November 1, 1997	
YJP		4-diphosphocytidyl-2-c-methyl-d-erythritol kinase, SwissProt #P24209, March 1, 1992	
YJP		Luttgen et al., Biosynthesis of terpenoids: YchB protein of Escherichia coli phosphorylates the 2-hydroxy group of 4-diphosphocytidyl-2C-methyl-D-erythritol, Proc. Natl. Acad. Sci. USA 97: 1062-1067, 2000	
YJP		Lee et al., Erythroid Kruppel-like factor is recruited to the CACCC box in the $\beta$ -globin promoter. The role of the neighboring promoter elements, Proc. Natl. Acad. Sci. USA 97: 2468-2490, 2000	
YJP		2C-methyl-d-erythritol 2,4-cyclodiphosphate synthase, SwissProt #P38663, June 1, 1994	
YJP		Weng et al., Nucleotide Sequence of Escherichia coli pyrG Encoding CTP Synthetase, J. Biol. Chem., 261: 5568-5574, 1986	

Examiner Signature

YJP

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YJ		Lange and Croteau, Isopentenyl diphosphate biosynthesis via a mevalonate-independent pathway. Isopentenyl monophosphate kinase catalyzes the terminal enzymatic step. Proc. Natl. Acad. Sci. USA 96: 13714-13719, 1999	
YJ		Cunningham et al., Evidence of Role for LytB in the Nonmevalonate Pathway of Isoprenoid, Biosynthesis, J. of Bacteriol. 182: 5841-5848, 2000	
		<del>Gen Bank Accession No. AF027189, Acinetobacter, February 17, 2000.</del>	
		<del>Gen Bank Accession No. U98045, Synechocystis, October 6, 1997.</del>	
YJ		Rohdich et al., Cytidine 5'-triphosphate-dependent biosynthesis of isoprenoids, Proc. Natl. Acad. Sci. USA, 1999 Oct. 12; 96(21):11758-63	
YJ		Herz et al., Biosynthesis of terpenoids, YgbB protein converts 4-diphosphocytidyl-2C-methyl-D-erythritol 2-phosphate to 2C-methyl-D-erythritol 2,4-cyclodiphosphate, Proc. Natl. Acad. Sci. USA, 2000 Mar. 14; 97(6):2486-90	
YJ		Ohio et al., A thermophilic cyanobacterium Synechococcus elongatus has three different Class I prenyltransferases genes, Plant Mol. Biol. 40(2), 307-321, 1999	
YJ		Xiong, et al., Tracking molecular evolution of photosynthesis by characterization of a major photosynthesis gene cluster from heliobacillus mobilis, Proc. Natl. Acad. Sci. U.S.A. 95(25), 14851-14856, 1998	
		<del>Genbank # X07083, Diapophytoene dehydrogenase (Staphylococcus aureus), May 23, 1998</del>	
		<del>Genbank # G1: S913671, Acinetobacter sp BD413 LytB, February 17, 2000</del>	

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YJ

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Examiner Name	UNKNOWN
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### U.S. PATENT DOCUMENTS

Examiner Initials *	Cite No. <sup>1</sup>	Document Number Number - Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
Y		US - 5,429,929	07/04/1995	Misawa Norihiko et al.	
Y		US - 6,107,058	08/22/2000	GWYNN ET AL.	
Y		US - 5,530,189	06/25/1996	AUSICH ET AL.	

### FOREIGN PATENT DOCUMENTS

Examiner Initials *	Cite No. <sup>1</sup>	Foreign Patent Document CountryCode <sup>3</sup> Number <sup>4</sup> Kind Code <sup>5</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sub>6</sub>
Y		WO 9958649 A1	11/18/1999	University of Maryland		<input type="checkbox"/>
Y		WO 0044912 A1	08/03/2000	Royal Holloway and Bedford New College		<input type="checkbox"/>
Y		WO 9911757 A1	03/11/1999	Washington State University Research Foundation		<input type="checkbox"/>
Y		EP 1072683 A1	01/31/2001	Kyowa Hakko Kogyo Co.		<input type="checkbox"/>
Y		EP 0747483 A2	12/11/1996	Hoffman-La Roche AG		<input type="checkbox"/>
Y		EP 0872554 A2	10/21/1998	Hoffmann-La Roche AG		<input type="checkbox"/>
Y		WO 97 23633 A1	07/03/1997	Gist-Brocades B. V.		<input type="checkbox"/>
Y		WO 9735966 A1	10/02/1997	MAXYGEN INC.		<input type="checkbox"/>
Y		WO 0034448 A1	06/15/2000	DUPONT		<input type="checkbox"/>
Y		WO 0046346 A1	08/10/2000	WASHINGTON STATE UNIVERSITY RESEARCH FOUNDATION		<input type="checkbox"/>
Y		WO 0063389 A1	10/26/2000	CALGENE LLC		<input type="checkbox"/>
Y		WO 0065036 A1	11/02/2000	BASF		<input type="checkbox"/>
Y		EP 1043403 A1	10/11/2000	GPC AG		<input type="checkbox"/>
Y		WO 00/6179 2 A1	10/19/2000	BAYER		<input type="checkbox"/>
Y		WO 0061793 A2	10/19/2000	GPC BIOTECH AG		<input type="checkbox"/>
Y		WO 0111055 A1	02/15/2001	WOLFGANG		<input type="checkbox"/>
Y		WO 0183769 A2	11/08/2001	SALK INSTITUTE FOR BIOLOGICAL STUDIES		
Y		WO 0194561 A3	12/13/2001	WOLFGANG		
Y		EP 0816490 A2	01/07/1998	TOYOTA		
Y		EP 0955363 A2	11/10/1999	F. HOFFMANN-LA ROCHE AG		
Y		EP 0974661 A1	12/10/1998	TOYOTO		
Y		EP 1063297 A1	12/27/2000	KOREA KUMHO PETROCHEMICAL CO. LTD.		
Y		WO 01/8595 0 A2	11/15/2001	JOMAA PHARMAKA GMBH		

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g		Rodriguez-Concepton et al., Genetic evidence of branching in the isoprenoid pathway for the production of isopentenyl diphosphate and dimethylallyl diphosphate in <i>Escherichia coli</i> , FEBS Letters, Vol. 473, No. 3, May 19, 2000, pp. 328-332, XP00218415	<input type="checkbox"/>
g		Rohmer, M., Isoprenoid Biosynthesis via the Mevalonate-Independent Route, A Novel Target for Antibacterial Drugs?, Progress in Drug Research, Basel: Birkhaeuser, CH, Vol. 50, 1998, pp. 135-154, XP000906878	<input type="checkbox"/>
g		Lois et al., Cloning and Characterization of a gene from <i>Escherichia coli</i> encoding a transketolase-like enzyme that catalyzes the synthesis of D-1-deoxyxylulose 5-phosphate, a common precursor for isoprenoid, thiamin, and pyridoxol biosynthesis", FASEB Journal, Fed. Of American Soc. For Experimental Biology, Bethesda, MD, Vol 95, March 1998, pp. 2105-2110	<input type="checkbox"/>
g		Scolnik et al., A Table of Some Cloned Plant Genes Involved in Isoprenoid Biosynthesis", Plant Molecular Biology Reporter, New York, NY Vol. 14, No. 4, December 1998, pp. 305-318, XP000884798	<input type="checkbox"/>
g		Bartley et al., Molecular Biology of Carotenoid Biosynthesis in Plants", Annual Review of Plant Physiology and Plant Molecular Biology, Annual Reviews Inc, Vol. 45, 1994, pp. 287-301, XP000881128	<input type="checkbox"/>
g		Rohmer, Isoprenoid Biosynthesis via the Mevalonate-Independent Route, A novel Target for Antibacterial Drugs?, Progress in Drug Research, Basel, Vol. 50, 1998, pp. 135-154, XP000906878	<input type="checkbox"/>
g		Hanson et al., Methanotrophic bacteria", Microbiological Reviews, American Society for Microbiology, Washington, D.C., Vol. 60, No. 2, June 1996, pp. 439-471	<input type="checkbox"/>
g		Zhu Xufen et al., Geranylgeranyl pyrophosphate synthase encoded by the newly isolated gene GGPS6 from <i>Arabidopsis thaliana</i> is localized in mitochondria", Plant Molecular Biology, Nijhoff Publishers, Dordrecht, NL, Vol. 35, No. 3, 1997, pp. 331-341, XP002153883	<input type="checkbox"/>
g		Misawa et al., "Elucidation of the <i>Erwinia Uredovora</i> Carotenoid Biosynthetic Pathway by Functional Analysis of Gene Products Expressed in <i>Escherichia Coli</i> ", Journal of Bacteriology, Washington, D.C., Vol. 172, No. 12, December 1990, pp. 6704-6712	<input type="checkbox"/>
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